



# ***STIC Search Report*** ***EIC 1700***

**STIC Database Tracking Number: 177726**

**TO: Helen Pezzuto  
Location: REM 10A29  
Art Unit : 1713  
January 31, 2006**

**Case Serial Number: 10/736639**

**From: Kathleen Fuller  
Location: EIC 1700  
REMSSEN 4B28  
Phone: 571/272-2505  
Kathleen.Fuller@uspto.gov**

## **Search Notes**

There were only 4 structures from the query which covered claim 1 bicarboxylic monomer and 2 CA references. One reference was the application and the other was a 2005 journal article to one of the applicants.

## SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: Heidi Furtado Examiner #: 70158 Date: 1/26/06  
 Art Unit: 1713 Phone Number-30 2-1108 Serial Number: 10/736,639  
 Mail Box and Bldg/Room Location: KLIN-10429 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

\*\*\*\*\*

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: See ATTACHED SCIENTIFIC REFERENCE BR  
 Sci & Tech Inf. Ctr

Inventors (please provide full names): JAN 26 REG

Pat. & T.M. Office  
 Earliest Priority Filing Date: 12/31/02

\*For Sequence Searches Only\* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

Claims 9-10, 21-24 pending (elected) →  
 A copolymer of (II) derived from a  
 bicarboxyl monomer (I) (shown in cl. 1)  
 The copolymer has utility as a "dispersant"  
 for processing ceramic powder suspensions  
 slurry.

Many thanks!  
 C. F. L.

## STAFF USE ONLY

Type of Search		Vendors and cost where applicable
Searcher: <u>A. Fuller</u>	NA Sequence (#) _____	STN <u>✓</u>
Searcher Phone #: _____	AA Sequence (#) _____	Dialog _____
Searcher Location: _____	Structure (#) <u>1</u>	Questel/Orbit _____
Date Searcher Picked Up: _____	Bibliographic _____	Dr. Link _____
Date Completed: <u>1/31/06</u>	Litigation _____	Lexis/Nexis _____
Searcher Prep & Review Time: <u>30</u>	Fulltext _____	Sequence Systems _____
Clerical Prep Time: _____	Patent Family _____	WWW/Internet _____
Online Time: <u>18</u>	Other _____	Other (specify) _____



# STIC Search Results Feedback Form

**EIC17000**

Questions about the scope or the results of the search? Contact *the EIC searcher* or contact:

Kathleen Fuller, EIC 1700 Team Leader  
571/272-2505 REMSEN 4B28

## Voluntary Results Feedback Form

- I am an examiner in Workgroup:  Example: 1713
- Relevant prior art **found**, search results used as follows:

- ☐ 102 rejection
- ☐ 103 rejection
- ☐ Cited as being of interest.
- ☐ Helped examiner better understand the invention.
- ☐ Helped examiner better understand the state of the art in their technology.

Types of relevant prior art found:

- ☐ Foreign Patent(s)
- ☐ Non-Patent Literature  
(journal articles, conference proceedings, new product announcements etc.)

- Relevant prior art **not found**:

- ☐ Results verified the lack of relevant prior art (helped determine patentability).
- ☐ Results were not useful in determining patentability or understanding the invention.

Comments:

=> FILE REG

FILE 'REGISTRY' ENTERED AT 09:37:48 ON 31 JAN 2006

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Property values tagged with IC are from the ZIC/VINITI data file provided by InfoChem.

STRUCTURE FILE UPDATES: 29 JAN 2006 HIGHEST RN 872967-60-7

DICTIONARY FILE UPDATES: 29 JAN 2006 HIGHEST RN 872967-60-7

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TSCA INFORMATION NOW CURRENT THROUGH JULY 14, 2005

Please note that search-term pricing does apply when conducting SmartSELECT searches.

\*\*\*\*\*  
\*  
\* The CA roles and document type information have been removed from \*  
\* the IDE default display format and the ED field has been added, \*  
\* effective March 20, 2005. A new display format, IDERL, is now \*  
\* available and contains the CA role and document type information. \*  
\*  
\*\*\*\*\*

Structure search iteration limits have been increased. See HELP SLIMITS for details.

REGISTRY includes numerically searchable data for experimental and predicted properties as well as tags indicating availability of experimental property data in the original document. For information on property searching in REGISTRY, refer to:

<http://www.cas.org/ONLINE/UG/regprops.html>

=> FILE HCAPL

FILE 'HCAPLUS' ENTERED AT 09:37:53 ON 31 JAN 2006

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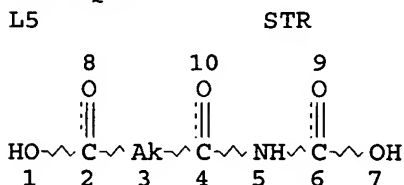
FILE COVERS 1907 - 31 Jan 2006 VOL 144 ISS 6

FILE LAST UPDATED: 30 Jan 2006 (20060130/ED)

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This file contains CAS Registry Numbers for easy and accurate substance identification.

=> D QUE



*4 structures from this query which covers claim 1 bicarboxylic*

NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM  
GGCAT IS UNS AT 3  
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED  
NUMBER OF NODES IS 10

STEREO ATTRIBUTES: NONE

L7 4 SEA FILE=REGISTRY SSS FUL L5  
L8 2 SEA FILE=HCAPLUS ABB=ON L7

*2 CA references from the 4 structures*

=> D L8 BIB ABS IND HITSTR 1-2

L8 ANSWER 1 OF 2 HCAPLUS COPYRIGHT 2006 ACS on STN  
AN 2005:955273 HCAPLUS  
DN 143:387476  
TI Synthesis and application of an anionic water-soluble copolymer as a dispersant for barium titanate slurries  
AU Chen, Lung-Pin; Wu, Hsin-Hsuan; Hsu, Kung-Chung  
CS Department of Chemistry, National Taiwan Normal University, Taipei, 116, Taiwan  
SO Journal of Applied Polymer Science (2005), 98(1), 109-115  
CODEN: JAPNAB; ISSN: 0021-8995  
PB John Wiley & Sons, Inc.  
DT Journal  
LA English  
AB An anionic water-soluble copolymer, poly(acrylamide/4-carboxyl-amino-4-oxo-2-butenate) (PAAM/COB), was synthesized and used as a dispersion agent for BaTiO<sub>3</sub> particles. PAAM/COB was prepared from acrylamide and 4-carboxyl-amino-4-oxo-2-butenate in basic conditions through free-radical polymerization. The structure of this copolymer was verified by IR and 1H-NMR spectra. We examined the dispersion effects of PAAM/COB by measuring the viscosity and sedimentation of BaTiO<sub>3</sub> suspensions and by analyzing the particle sizes. The results indicate that this copolymer was indeed effective in dispersing the particles, for the resulting suspensions were less viscous, more stabilized, and contained powder with smaller particle sizes.  
CC 35-4 (Chemistry of Synthetic High Polymers)  
ST acrylamide carboxylaminooxobutenate copolymn polyelectrolyte dispersant particle size morphol surface  
IT Dispersing agents  
Particle size  
Sedimentation (separation)  
Viscosity  
(anionic water-soluble copolymer as dispersant for barium titanate)

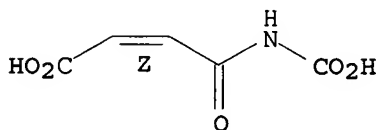
slurries)  
IT Polymer morphology  
(surface; anionic water-soluble copolymer as dispersant for barium titanate slurries)  
IT 866886-43-3P  
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
(anionic water-soluble copolymer as dispersant for barium titanate slurries)  
IT 12047-27-7, Barium titanate, properties  
RL: PRP (Properties)  
(aq.suspension; anionic water-soluble copolymer as dispersant for barium titanate slurries)  
IT 108-31-6, Maleic anhydride, reactions 1111-78-0, Ammonium carbamate  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(monomer synthesis; anionic water-soluble copolymer as dispersant for barium titanate slurries)  
IT 866886-41-1P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(monomer; anionic water-soluble copolymer as dispersant for barium titanate slurries)  
IT 7727-21-1, Potassium persulfate 7772-98-7, Sodium thiosulfate  
RL: CAT (Catalyst use); USES (Uses)  
(polymerization catalyst; anionic water-soluble copolymer as dispersant for barium titanate slurries)  
IT 866886-43-3P  
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
(anionic water-soluble copolymer as dispersant for barium titanate slurries)  
RN 866886-43-3 HCAPLUS  
CN 2-Butenoic acid, 4-(carboxyamino)-4-oxo-, diammonium salt, (2Z)-, polymer with 2-propenamide (9CI) (CA INDEX NAME)

CM 1

CRN 866886-41-1

CMF C5 H5 N O5 . 2 H3 N

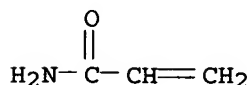
Double bond geometry as shown.

● 2 NH<sub>3</sub>

CM 2

CRN 79-06-1

CMF C3 H5 N O



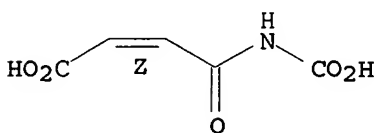
IT 866886-41-1P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(monomer; anionic water-soluble copolymer as dispersant for barium titanate slurries)

RN 866886-41-1 HCAPLUS

CN 2-Butenoic acid, 4-(carboxyamino)-4-oxo-, diammonium salt, (2Z)- (9CI)  
(CA INDEX NAME)

Double bond geometry as shown.

● 2 NH<sub>3</sub>

RE.CNT 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 2 OF 2 HCAPLUS COPYRIGHT 2006 ACS on STN

AN 2004:534009 HCAPLUS

DN 141:89876

TI Bicarboxyl monomers, copolymers, and preparation

IN Chen, Lung-pin; Hsu, Kung-chung

PA National Taiwan Normal University, Taiwan

SO U.S. Pat. Appl. Publ., 12 pp.

CODEN: USXXCO

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2004127624	A1	20040701	US 2003-736639	20031217
	TW 593366	B	20040621	TW 2002-91138143	20021231
PRAI	TW 2002-91138143	A	20021231		

OS MARPAT 141:89876

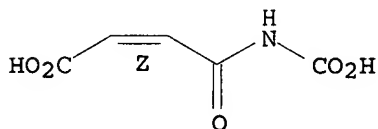
AB A bicarboxyl monomer R1O2CCH:CHCONHCO2OR2, where R1 and R2 = H, alkali metal, or ammonium, was addition polymerized to give a copolymer useful in a dispersant composition for ceramics. The copolymer can be applied to prepare ceramic powder slurry for reducing the release of cations, dispersing the ceramic particles homogeneously in the ceramic powder slurry, as well as stabilizing the suspension in the ceramic powder slurry. A bicarboxy monomer is made by (a) providing an organic solution containing maleic anhydride, (b) adding ammonium carbamate, (c) heating to form a precipitate, (d) filtrating precipitate, (e) dissolving precipitate in water and adjusting to pH 9-11 with 1 N NH4OH, and (f) removing the water in step (e) and drying the bicarboxy monomer.

IC ICM C08K003-10

*application*

ICS C07C271-02  
 INCL 524435000; 526240000; 526303100; 524437000; 562555000  
 CC 37-2 (Plastics Manufacture and Processing)  
 Section cross-reference(s): 57  
 ST carboxylamino oxobutenate prepn copolymer dispersant ceramic slurry  
 IT Powders  
 (ceramic; dispersant for stable ceramic powder dispersions)  
 IT Dispersing agents  
 (for stable ceramic powder dispersions)  
 IT Ceramics  
 (powders; dispersant for stable ceramic powder dispersions)  
 IT 1314-23-4, Zirconium oxide, uses 1344-28-1, Aluminum oxide, uses  
 12047-27-7, Barium titanate, uses  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (dispersant for stable ceramic powder dispersions)  
 IT 866886-43-3P  
 RL: SPN (Synthetic preparation); TEM (Technical or engineered material  
 use); PREP (Preparation); USES (Uses)  
 (dispersant; dispersant for stable ceramic powder dispersions)  
 IT 110-16-7, Maleic acid, reactions 1111-78-0, Ammonium carbamate  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (in preparation of dispersant for stable ceramic powder dispersions)  
 IT 866886-41-1P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (preparation and polymerization; in preparation of dispersant for stable ceramic  
 powder  
 dispersions)  
 IT 866886-43-3P  
 RL: SPN (Synthetic preparation); TEM (Technical or engineered material  
 use); PREP (Preparation); USES (Uses)  
 (dispersant; dispersant for stable ceramic powder dispersions)  
 RN 866886-43-3 HCAPLUS  
 CN 2-Butenoic acid, 4-(carboxyamino)-4-oxo-, diammonium salt, (2Z)-, polymer  
 with 2-propenamide (9CI) (CA INDEX NAME)  
 CM 1  
 CRN 866886-41-1  
 CMF C5 H5 N O5 . 2 H3 N

Double bond geometry as shown.

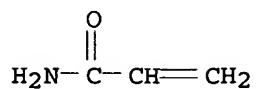


● 2 NH<sub>3</sub>

CM 2

CRN 79-06-1  
 CMF C3 H5 N O





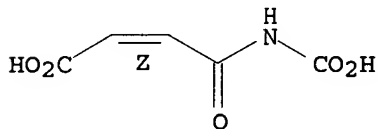
IT 866886-41-1P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
(Reactant or reagent)(preparation and polymerization; in preparation of dispersant for stable ceramic  
powder dispersions)

RN 866886-41-1 HCAPLUS

CN 2-Butenoic acid, 4-(carboxyamino)-4-oxo-, diammonium salt, (2Z)- (9CI)  
(CA INDEX NAME)

Double bond geometry as shown.

● 2 NH<sub>3</sub>

=&gt;